# Final Site-Specific Safety and Health Plan Attachment Supplemental Site Investigation at the Former Decontamination Complex Parcels 93(7), 46(7), and 70(7) Fort McClellan Calhoun County, Alabama EPA ID No. AL7 210 020 562

#### Prepared for:

U.S. Army Corps of Engineers, Mobile District 109 St. Joseph Street Mobile, Alabama 36602

Prepared by:

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Delivery Order CK05 Contract No. DACA21-96-D-0018 IT Project No. 774645

September 2001

#### Revision 0

This Site-Specific Safety and Health Plan must be used in conjunction with the Installation-Wide Safety and Health Plan, Fort McClellan, Alabama.

### **Final** Site-Specific Safety and Health Plan Attachment Approval Fort McClellan, Calhoun County, Alabama

I have read and approve this site-specific safety and health plan attachment for the Former Decontamination Complex at Fort McClellan, Alabama, with respect to project hazards, regulatory requirements, and IT Corporation procedures.

Jeanné Yacoub, PE Project Manager

William J. Hetrick, CIH

Health & Safety Manager

Jeff Tarr

Site Coordinator

### **Acknowledgements**

The final approved version of this site-specific safety and health plan (SSHP) attachment for the Former Decontamination Complex at Fort McClellan, Alabama, has been provided to the site coordinator. I acknowledge my responsibility to provide the site coordinator with the equipment, materials, and qualified personnel to implement fully all safety requirements in this SSHP attachment. I will formally review this plan with the health and safety staff every 6 months until project completion.

Project Manager

Date

I acknowledge receipt of this SSHP attachment from the project manager, and that it is my responsibility to explain its contents to all site personnel and cause these requirements to be fully implemented. Any change in conditions, scope of work, or other change that might affect worker safety requires me to notify the project manager and/or the health and safety manager.

Site Coordinator

Date

### Safety and Health Plan Acknowledgement Form

I have been informed of, and will abide by the procedures set forth in this site-specific safety and health plan attachment for the activities at the Former Decontamination Complex at Fort McClellan, Calhoun County, Alabama.

| Printed Name | Signature                             | Representing                          | Date     |
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### **Fort McClellan Gate Hours**

| Baltzell Gate | Baltzell Road.<br>Open 24 hours daily, 7 days a week. |
|---------------|---|
| Galloway Gate | Galloway Road. Open 6 am to 6 pm Monday trough Friday |

### Fort McClellan Project Emergency Contacts

| Range Control Office (Main Post)                             | (256) 848-6772                    |
|--|-----------------------------------|
| Fire Department (off post)                                   | 911                               |
| Ambulance (off post)   | 911                               |
| Regional Medical Center                                      | (256) 235-5121                    |
| Military Police (SSG Busch)                                  | (256) 848-5680, 848-4824          |
| DOD Guard Force (Mr. Bolton)                                 | (256) 848-5680, 848-4732          |
| Anniston Police Department                                   | (256) 238-1800                    |
| Chemical Agent Emergencies                                   | (256) 895-1598                    |
| (Jimmy Walker, CEHNC)  | cell phone (256) 759-3931         |
| UXO Emergencies  | (256) 895-1598                    |
| (Jimmy Walker, CEHNC)  | cell phone (256) 759-3931         |
| UXO Non-Emergencies/Reporting Only (Ronald Levy)             | (256) 848-3758                    |
| Baltzell Gate Guard Shack                                    | (256) 848-5693, 848-3821          |
| National Response Center & Terrorist Hotline                 | (800) 424-8802                    |
| Poison Control Center  | (800) 462-0800                    |
| EPA Region IV  | (404) 562-8725                    |
| Ronald Levy, Chief, FTMC Environmental Management            | (256) 848-3758                    |
| Ellis Pope, U.S. Army Corps of Engineers                     | (334) 690-3077                    |
| Jeanne Yacoub, IT Project Manager                            | (770) 663-1429                    |
| Bill Hetrick, IT H&S Manager(865) 69                         | 90-3211, and pager (888) 655-9529 |
| Jeff Tarr, IT Site Manager                                   | (256) 848-3482                    |
| Mike Moore, Fort McClellan Safety Office                     | (256) 848-5433                    |
| Dr. Jerry H. Berke, Health Resources Occupational Physician. | (800) 350-4511                    |
| Sergeant Tim Lane, National Guard Security Operations        | (256) 848-6176                    |

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### List of Acronyms\_

BZ breathing zone

FTMC Fort McClellan

PPE personal protective equipment

SHP installation-wide safety and health plan

SSHO site safety and health officer

SSHP site-specific safety and health plan

### 1.0 Site Work Plan Summary

**Project Objective.** The objective of this supplemental site investigation at Fort McClellan (FTMC), Calhoun County, Alabama is to collect and analyze samples from the Former Decontamination Complex, Parcels 93(7), 70(7), and 46(7).

#### **Project Tasks**

- Collect surface soil samples.
- Installation of monitoring wells
- Collection of groundwater samples.

#### Personnel Requirements. Up to ten employees.

Note: All personnel on this site shall have received training, informational programs, and medical surveillance as outlined in the installation-wide safety and health plan (SHP) for site investigations at FTMC, and be familiar with the requirements of this site-specific SHP (SSHP). This SSHP must be used in conjunction with the SHP, FTMC, Alabama.

### 2.0 Site Characterization and Analysis

#### 2.1 Anticipated Hazards

The activity hazard analysis in Chapter 5.0 contains project-specific practices utilized to reduce or eliminate anticipated site hazards. The activity hazard analysis indicates specific chemical and physical hazards that may be present and encountered during each task from on-site operations. Below each task is a list of hazards and specific actions that will be taken to control the respective hazards. These control measures may include work practice controls, engineering controls, and/or use of appropriate personal protective equipment (PPE).

The Former Decontamination Complex consisted of a gas station with two 10,000-gallon underground storage tanks, several large portable storage tanks, a chemical laundry, a bakery, a vehicle wash rack, a dump truck cleaning facility, and a decontamination apparatus branch. Currently, the Former Decontamination Complex is a four-acre fenced area with one standing building (Building 1271). The remainder of the site consists of paved or gravel areas, building foundations, or wetland areas. The site is used by the Alabama Army National Guard for storing large equipment (e.g., bleachers) and vehicles. Chemicals suspected to have been used at these facilities include gasoline, lead, diesel fuel, chlorinated oils, toluene, ethanol, and mercuric cyanide.

Table 2-1 contains the toxicological and physiological properties of chemicals anticipated or to be used at the Former Decontamination Complex.

#### 2.2 General Site Information

**Location of Site.** The Former Decontamination Complex is located at the corner of Trench Hill Road and Freemont Road. The site covers an area of approximately 4.0 acres.

**Duration of Planned Employee Activity.** Employee activity duration is anticipated to be less than two months.

**Site Topography.** The site elevation is approximately 740 feet, with ground sloping to the west-northwest.

**Pathways for Hazardous Substance Dispersion.** Possible pathways for hazardous substances in the area are groundwater and surface soils.

Table 2-1

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| Substance<br>[CAS]          | IP*<br>(eV) | Odor<br>Threshold<br>(ppm) | Route⁵                   | Symptoms of Exposure   | Treatment  | TWA°   | STEL⁴                          | Source            | IDLH<br>(NIOSH) <sup>f</sup> |
|-----------------------------|-------------|----------------------------|--------------------------|--|--|--|--------------------------------|-------------------|------------------------------|
| Acetone<br>[67-64-1]        | 9.7         | 13-100                     | Inh<br>Ing<br>Con        | Irritated eyes, nose, and throat; headache, dizziness; dermatitis.   | Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention | 1000 ppm<br>500 ppm<br>250 ppm               | 1,000 ppm                      | PEL<br>TLV<br>REL | 25,000 ppm                   |
| Benzene<br>[71-43-2]        | 9.24        | 34-119                     | Inh<br>Abs<br>Ing<br>Con | Irritates eyes, nose, respiratory system; giddiness; headache, nausea, staggered gait; fatigue, anorexia, lassitude; dermatitis; bone-marrow depression. Carcinogenic. | Eye: Irrigate immediately Skin: Soap wash promptly Breath: Respiratory support Swallow: Immediate medical attention    | 1 ppm<br>(10 ppm)<br>NIC-0.1 skin<br>0.1 ppm | 5 ppm<br>2.5<br>C1 ppm<br>(Ca) | PEL<br>TLV<br>REL | Ca<br>[500 ppm]*<br>*OSHA    |
| Ethanol                     | 9.51        | NA                         | Inh<br>Ing<br>Con        | Irritated eyes, skin, nose;<br>headache; cough, liver<br>damage; anemia.   | Eye: Irrigate immediately Skin: Water flush promptly Breath: Fresh air Swallow: Immediate medical attention            | 1,000 ppm<br>1,000 ppm<br>1,000 ppm          |                                | PEL<br>TLV<br>REL | 3,300 ppm<br>(LEL)           |
| Ethyl benzene<br>[100-41-4] | 8.76        | 0.09-0.6                   | Inh<br>Ing<br>Con        | Irritates eyes, mucous<br>membranes; headache;<br>dermatitis; narcosis, coma.  | Eye: Irrigate immediately Skin: Water flush promptly Breath: Respiratory support Swallow: Immediate medical attention  | 100 ppm<br>100 ppm<br>100 ppm                | 125 ppm<br>125 ppm             | PEL<br>TLV<br>REL | 800 ppm                      |

#### Table 2-1

#### Toxicological and Physical Properties of Chemicals Former Decontamination Complex Parcels 93(7), 70(7), and 46(7) Fort McClellan, Calhoun County, Alabama

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| Substance<br>[CAS]                      | IPª<br>(eV) | Odor<br>Threshold<br>(ppm) | Route <sup>b</sup> | Symptoms of Exposure  | Treatment   | TWA° | STEL⁴ | Source            | IDLH<br>(NIOSH) <sup>f</sup> |
|---|-------------|----------------------------|--------------------|---|---|------|-------|-------------------|------------------------------|
| Fuel oil<br>(diesel oil, medium)        | ?           | ?                          | Ing<br>Inh<br>Con  | Ingestion causes nausea, vomiting, and cramps; depressed central nervous system, headache, coma, death; pulmonary irritation; kidney and liver damage; aspiration causes severe lung irritation, coughing, gagging, dyspnea, substernal stress, pulmonary edema; bronchopneumonia; excited, then depressed, central nervous system. | Eye: Irrigate promptly Skin: Soap wash Breath: Respiratory support Swallow: Immediate medical attention Aspiration: Immediate medical Attention |      |       | PEL<br>TLV<br>REL |                              |
| Fuel Oil No. 1, see kerosene.           |             |                            |                    |   |   |      |       | PEL<br>TLV<br>REL |                              |
| [NA] Fuel Oil No. 2, see fuel oil. [NA] |             |                            |                    |   |   |      |       | PEL<br>TLV<br>REL |                              |
| Fuel Oils No. 4, 5, and 6 [NA]          | ?           | ?                          | Abs<br>Con         | Low toxicity; prolonged contact may produce systemic effects.   | Eye: Irrigate immediately (15 min) Skin: Soap wash immediately Swallow: Immediate medical attention   |      |       | PEL<br>TLV<br>REL |                              |

Table 2-1

(Page 3 of 8)

| Substance<br>[CAS]                                    | IPª<br>(eV) | Odor<br>Threshold<br>(ppm) | Route <sup>b</sup> | Symptoms of Exposure   | Treatment  | TWA°   | STEL⁴                      | Source <sup>e</sup> | IDLH<br>(NIOSH) <sup>f</sup> |
|---|-------------|----------------------------|--------------------|--|--|--|----------------------------|---------------------|------------------------------|
| Kerosene  | ?           | ?                          | Inh<br>Ing<br>Con  | Irritation to eyes, skin, nose, throat; burning sensation in chest; nausea; weakness; headache; confusion; drowsiness; vomiting; dermatitis; chemical pneumonia. | Eye: Irrigate immediately Skin: Soap wash promptly Breath: Respiratory support Swallow: Immediate medical attention          | 100 mg/m³  |                            | PEL<br>TLV<br>REL   |                              |
| Gasoline<br>[8006-61-9]                               | ?           | 0.3                        | Inh<br>Ing<br>Con  | Intoxication, headaches, blurred vision, dizziness, nausea; eye, nose throat irritation; potential kidney and other cancers. Carcinogenic.                       | Eye: Irrigate immediately (15 min) Skin: Soap wash promptly Breath: Respiratory support Swallow: Immediate medical attention | 300 ppm<br>300 ppm<br>Ca, lowest feasible<br>conc.<br>(LOQ 15 ppm) | 500 ppm<br>500 ppm         | PEL<br>TLV<br>REL   | ?                            |
| n-Hexane<br>[110-54-3]                                | 10.18       | 65–248                     | Inh<br>Ing<br>Con  | Lightheadedness; nausea, headache; numbness of the extremities, muscular weakness; irritation of the eyes and nose; dermatitis; chemical pneumonia; giddiness.   | Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention       | 500 ppm<br>50 ppm<br>50 ppm  |                            | PEL<br>TLV<br>REL   | 1,100 ppm<br>10% of LEL      |
| Hydrogen chloride<br>(hydrochloric acid)<br>[74-90-8] | 12.74       | 0.255-10.6                 | Inh<br>Ing<br>Con  | Inflamed nose, throat,<br>larynx; cough, burns throat,<br>choking; burns eyes, skin;<br>dermatitis; in animals;<br>laryngeal spasm; pulmonary<br>edema.          | Eye: Irrigate immediately Skin: Water flush immediately Breath: Respiratory support Swallow: Immediate medical attention     |  | C5 ppm<br>C5 ppm<br>C5 ppm | PEL<br>TLV<br>REL   | 50 ppm                       |

Table 2-1

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| Substance<br>[CAS]                              | iPª<br>(eV) | Odor<br>Threshold<br>(ppm) | Route⁵                   | Symptoms of Exposure   |                                      | Treatment  | TWA°  | STEL <sup>d</sup>                  | Source®           | IDLH<br>(NIOSH) <sup>f</sup> |
|---|-------------|----------------------------|--------------------------|--|--------------------------------------|--|---|------------------------------------|-------------------|------------------------------|
| Isopropyl alcohol<br>(isopropanol)<br>[67-63-0] | 10.16       | 43-200                     | Inh<br>Ing<br>Con        | Mild irritation of the eyes,<br>nose, and throat; drowsi-<br>ness, dizziness, headache;<br>dry, cracked skin.                              | Eye:<br>Skin:<br>Breath:<br>Swallow: | Irrigate immediately Water flush Respiratory support Immediate medical attention   | 400 ppm<br>400 ppm<br>400 ppm               | 500 ppm<br>500 ppm                 | PEL<br>TLV<br>REL | 2,000 ppm                    |
| Lead  | NA          | NA                         | Inh<br>Ing<br>Con        | Weak, insomnia, facial pallor, constipated, abdominal pain, colic, anemia, irritated eyes, paralysis of wrists and ankles, encephalopathy. | Eye:<br>Skin:<br>Breath:<br>Swallow: | Irrigate immediately<br>Soap wash promptly<br>Respiratory support<br>Immediate medical<br>attention  |   | 0.05 mg/m<br>0.05 mg/m<br>0.1 mg/m | PEL<br>TLV<br>REL | 100 mg/m                     |
| Mercuric cyanide                                | NA          | NA                         | Inh<br>Ing<br>Con        | Violent poison. Highly toxic.  | Eye: Skin: Breath: Swallow:          | Irrigate immediately Immediate medical attention Soap wash immediately Immediate medical attention Respiratory support Immediate medical attention Immediate medical attention |   | 0.1 mg/m3<br>0.1 mg/m3<br>         | PEL<br>TLV<br>REL |                              |
| Methanol  | 10.85       | 4.2-5960                   | Inh<br>Abs<br>Ing<br>Con | Irritated eyes, headache,<br>drowsiness,<br>lightheadedness, nausea,<br>vomiting, disturbance in<br>vision, blindness.                     | Eye:<br>Skin:<br>Breath:<br>Swallow: | Irrigate immediately<br>Water flush promptly<br>Fresh air<br>Immediate medical<br>attention  | 200 ppm<br>200 ppm (skin)<br>200 ppm (skin) | 250 ppm (skin)<br>250 ppm          | PEL<br>TLV<br>REL | 6,000 ppm                    |

Table 2-1

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| Substance<br>[CAS]                                 | IPª<br>(eV) | Odor<br>Threshold<br>(ppm) | Route <sup>b</sup> | Symptoms of Exposure  | Treatment   | TWA°                          | STEL <sup>d</sup>                           | Source            | IDLH<br>(NIOSH) <sup>f</sup> |
|--|-------------|----------------------------|--------------------|---|---|-------------------------------|---|-------------------|------------------------------|
| Methylene chloride (dichloromethane)               | 11.32       | ?                          | Inh<br>Ing<br>Con  | Fatigue, weakness, sleepiness, lightheadedness; numbness and tingling in limbs; nausea; irritated eyes and skin.          | Eye: Irrigate immediately Skin: Soap wash promptly Breath: Respiratory support Swallow: Immediate medical attention   | 25 ppm<br>50 ppm              | 125 ppm<br>C2,000 mg/m³<br>(5 min in 2 hrs) | PEL<br>TLV<br>REL | Ca<br>(2,300 ppm)            |
| Methyl ethyl ketone<br>[78-93-3]                   | 9.54        | 2-85                       | Inh<br>Ing<br>Con  | Irritated eyes and nose;<br>headache, dizziness;<br>vomiting.   | Eye: Irrigate immediately Skin: Water flush promptly Breath: Fresh air Swallow: Immediate medical attention           | 200 ppm<br>200 ppm<br>200 ppm | 300 ppm<br>300 ppm                          | PEL<br>TLV<br>REL | 3,000 ppm                    |
| Motor oil [NA]                                     | ?           | ?                          | Inh<br>Ing         | Irritated eyes, skin,<br>respiratory system; usually<br>only a problem if misted or<br>ingested.                          | Eye: Irrigate immediately (15 min) Skin: Soap wash immediately Swallow: Immediate medical attention                   |                               |   | PEL<br>TLV<br>REL |                              |
| Naptha, see petroleum distillate                   |             |                            |                    |   |   | -                             |   |                   |                              |
| Nitric acid<br>[7697-37-2]                         | 11.95       | 0.3-1                      | Inh<br>Ing<br>Con  | Irritated eyes, mucous<br>membranes, and skin;<br>delayed pulmonary edema,<br>pneumonitis, bronchitis;<br>dental erosion. | Eye: Irrigate immediately Skin: Water flush promptly Breath: Respiratory support Swallow: Immediate medical attention | 2 ppm<br>2 ppm<br>2 ppm       | 4 ppm<br>4 ppm                              | PEL<br>TLV<br>REL | 25 ppm                       |
| Petroleum distillate<br>(Naptha)<br>[8002-05-9]    | ?           | ?                          | Con<br>Ing         | Coughing, dyspnea, nausea, or vomiting.   |   | 350 ppm                       | C1,800 mg/m3                                | PEL<br>TLV<br>REL | 1,100 ppm                    |
| Petroleum<br>hydrocarbons,<br>see Stoddard solvent |             |                            |                    |   |   |                               |   |                   |                              |

Table 2-1

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| Substance<br>[CAS]              | IP <sup>a</sup><br>(eV) | Odor<br>Threshold<br>(ppm) | Route <sup>b</sup>       | Symptoms of Exposure   | Treatment  | TWA°                                | STEL <sup>d</sup>  | Source            | IDLH<br>(NIOSH) <sup>f</sup> |
|---------------------------------|-------------------------|----------------------------|--------------------------|--|--|-------------------------------------|--|-------------------|------------------------------|
| Portland cement                 |                         |                            | Inh                      | Fine gray powder that can be irritating if inhaled or in eyes.   | Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention   |                                     | 10 mg/m³<br>10 mg/m³/ total dust<br>5 mg/m³<br>respirable fraction | TLV<br>PEL/REL    |                              |
| Sodium hydroxide<br>[1310-73-2] | NA                      | NA                         | Inh<br>Ing<br>Con        | Irritated nose; pneumonitis;<br>burns eyes, and skin;<br>temporary loss of hair.   | Eye: Irrigate immediately Skin: Water flush immediately Breath: Respiratory support Swallow: Immediate medical attention | 2 mg/m³                             | C2 mg/m³<br>C2 mg/m³<br>C2 mg/m³                                   | PEL<br>TLV<br>REL | 10 mg/m³                     |
| Sulfuric acid<br>[7664-93-9]    | ?                       | 0.15                       | Inh<br>Ing<br>Con        | Irritated eyes, nose, and throat; pulmonary edema, bronchitis; emphysema; conjunctivitis; stomatitis; dental erosion; tracheobronchitis; skin and eye burns; dermatitis.   | Eye: Irrigate immediately Skin: Water flush immediately Breath: Respiratory support Swallow: Immediate medical attention | 1 mg/m³<br>1 mg/m³<br>1 mg/m³       | 3 mg/m³  | PEL<br>TLV<br>REL | 15 mg/m³                     |
| Stoddard Solvent                | ?                       | ?                          | Inh<br>Ing<br>Con        | Irritated eyes, nose, and throat; dizziness; dermatitis; chemical pneumonia.   | Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention   | 500 ppm<br>350 mg/m <sup>3</sup>    |  | PEL<br>TLV<br>REL | 20,000<br>mg/m³              |
| Toluene<br>[108-88-3]           | 8.82                    | 0.16-37                    | Inh<br>Abs<br>Ing<br>Con | Fatigue, weakness; con-<br>fusion, euphoria, dizziness,<br>headache; dilated pupils,<br>lacrimation; nervousness,<br>muscular fatigue, insomnia;<br>paralysis; dermatitis. | Eye: Irrigate immediately Skin: Soap wash promptly Breath: Respiratory support Swallow: Immediate medical attention      | 200 ppm<br>50 ppm (skin)<br>100 ppm | C300 ppm<br>150 ppm  | PEL<br>TLV<br>REL | 500 ppm                      |

Table 2-1

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| Substance<br>[CAS]  | IPª<br>(eV)            | Odor<br>Threshold<br>(ppm) | Route <sup>b</sup>       | Symptoms of Exposure   | Treatment   | TWA°                          | STEL <sup>d</sup>  | Source            | IDLH<br>(NIOSH) <sup>f</sup> |
|---|------------------------|----------------------------|--------------------------|--|---|-------------------------------|--------------------|-------------------|------------------------------|
| Xylene<br>(o-, m-, and<br>p-isomers)<br>[1330-20-7;95-47-6;<br>108-38-3;106-42-3] | 8.56/<br>8.56/<br>8.44 | 1.1-20                     | Inh<br>Abs<br>Ing<br>Con | Dizziness, excitement, drowsiness, incoordination, staggering gait; irritated eyes, nose, throat; corneal vacuolization; anorexia, nausea, vomiting, abdominal pain; dermatitis. | Eye: Irrigate immediately Skin: Soap wash promptly Breath: Respiratory support Swallow: Immediate medical attention | 100 ppm<br>100 ppm<br>100 ppm | 150 ppm<br>150 ppm | PEL<br>TLV<br>REL | 900 ppm                      |

#### Table 2-1

# Toxicological and Physical Properties of Chemicals Former Decontamination Complex Parcels 93(7), 70(7), and 46(7) Fort McClellan, Calhoun County, Alabama

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<sup>a</sup>IP = Ionization potential (electron volts).

<sup>b</sup>Route = lnh, Inhalation; Abs, Skin absorption; Ing, Ingestion; Con, Skin and/or eye contact.

TWA = Time-weighted average. The TWA concentration for a normal work day (usually 8 or 10 hours) and a 40-hour work week, to which nearly all workers may be repeatedly exposed, day after day without adverse effect.

dSTEL = Short-term exposure limit. A 15-minute TWA exposure that should not be exceeded at any time during a workday, even if the TWA is not exceeded.

PEL = Occupational Safety and Health Administration (OSHA) permissible exposure limit (29 CFR 1910.1000, Table Z).

AEL = Airborne Exposure Limit.

TLV = American Conference of Governmental Industrial Hygiene (ACGIH) threshold limit value—TWA.

REL = National Institute for Occupational Safety and Health (NIOSH) recommended exposure limit.

IDLH (NIOSH)—Immediately dangerous to life or health (NIOSH). Represents the maximum concentration from which, in the event of respirator failure, one could escape within 30 minutes without a respirator and without experiencing any escape-impairing or irreversible health effects.

NE = No evidence could be found for the existence of an IDLH (NIOSH Pocket Guide to Chemical Hazards, Pub. No. 1980).

C = Ceiling limit value which should not be exceeded at any time.

Ca = Carcinogen.

NA = Not applicable.

? = Unknown.

LEL = Lower explosive limits.

 $LC_{50}$  = Lethal concentration for 50 percent of population tested.

 $LD_{50}$  = Lethal dose for 50 percent of population tested.

NIC = Notice of intended change (ACGIH).

#### References:

American Conference of Governmental Industrial Hygienists Guide to Occupational Exposure Values, 1998, compiled by the American Conference of Governmental Industrial Hygienists.

Amoore, J. E. Hautula, "Odor as an Aid to Chemical Safety," Journal of Applied Toxicology, 1983.

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Micromedex Tomes Plus (R) System, 1992, Micromedex, Inc.

National Institute for Occupational Safety and Health Pocket Guide to Chemicals, Pub. 1998, National Institute for Occupational Safety and Health.

Odor Threshold for Chemicals with Established Occupational Health Standards, American Industrial Hygiene Association, 1989.

Respirator Selection Guide, 3M Occupational Health and Safety Division, 1993.

Verschuseren, K., Handbook of Environmental Data on Organic Chemicals, Van Nostrand and Reinhold, 1977.

Warning Properties of Industrial Chemicals—Occupational Health Resource Center, Oregon Lung Association.

Workplace Environmental Exposure Levels, American Industrial Hygiene Association, 1992.

### 3.0 Personal Protective Equipment

The work activities will begin in the following levels of protection. Also, a completed description of Level D, Modified Level D, and Level C PPE is provided.

| Task                         | Initial Level of PPE |
|------------------------------|----------------------|
| Equipment staging            | Level D              |
| Utility clearance            | Level D              |
| Surface soil sampling        | Level D              |
| Groundwater sampling         | Modified Level D*    |
| Monitoring well installation | Modified Level D*    |
| Surveying                    | Level D              |

<sup>\*</sup>Initial level will be raised to Level C or higher if air monitoring results in the worker's breathing zone (BZ) are greater than action levels.

**Level D.** The minimal level of protection that will be required of IT Corporation personnel at the site will be Level D. The following equipment will be used for Level D protection:

- Coveralls or work clothing
- Leather work gloves (when necessary)
- Steel-toed safety boots
- Safety glasses
- Hard hat
- Hearing protection (when working near/adjacent to operating equipment).

**Modified Level D.** The following equipment will be used for Level D-Modified protection:

- Permeable Tyvek, Kleenguard, or its equivalent (Saran-coated tyvek where chemical agents are anticipated)
- Latex boot covers
- Nitrile, heavy work, or latex gloves
- Steel-toed safety boots
- Safety glasses
- Hard hat
- Hearing protection (when working near/adjacent to operating equipment).

Note: In addition to modifying Level D PPE, the operator of high-pressure water jetting equipment shall wear metatarsal guards for the legs and feet.

**Level C.** Level C protection will not be used unless air-monitoring data indicate the need for upgrade; however, the equipment shall be readily available on site. The following equipment will be used for Level C protection:

- National Institute of Occupational Safety and Health/Mine Safety and Health Administration-approved full-face, air-purifying respirators equipped with organic vapor/acid gas cartridge in combination with high-efficiency particulate air filter
- Hooded, Saran-coated Tyvek, taped at gloves, boots, and respirator
- Nitrile gloves (outer)
- Latex or lightweight nitrile gloves (inner)
- Neoprene steel-toed boots or polyvinyl chloride overbooties/steel-toed safety boots
- Hard hat
- Hearing protection (when working near/adjacent to operating equipment).

Note: In addition to Level C PPE, the operator of high-pressure water jetting equipment shall wear metatarsal guards for the legs and feet.

### 4.0 Site Monitoring

The environmental contaminants of concern resulting from Former Decontamination Complex operations and previous site investigations are metals, nitroaromatic/nitramine explosives, and volatile organic compounds. Table 4-1 contains action levels for site monitoring at the Former Decontamination Complex.

Air monitoring will be performed by the site safety and health officer (SSHO) or task geologist during the performance of ground intrusive activities. A calibrated flame ionization detector (i.e., OVA 128 or equivalent) organic vapor analyzer will be utilized to monitor the sampling locations and BZs to determine if any organic material may be present that would necessitate upgrading of protection level. A calibrated combustible gas/oxygen indicator will be utilized to monitor the sampling location and BZs for the combustible/flammable gas and oxygen levels that would necessitate evacuation of the work area. Table 4-2 contains the air monitoring frequency and location for site monitoring at the Former Decontamination Complex.

#### Table 4-1

# Action Levels Former Decontamination Complex Parcels 93(7), 70(7), and 46(7) Fort McClellan, Calhoun County, Alabama

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#### When in Level C PPE

| Analyte          | Action Level                                     | Required Action <sup>a</sup>  |  |
|------------------|--|---|--|
| VOCs             | ≥ 10 ppm above background in breathing zone (BZ) | Stop work, evacuate work area, upgrade to Level B.                    |  |
| Benzene          | ≥ 5 ppm in BZ                                    | Stop work, evacuate work area, upgrade to Level B.                    |  |
| Oxygen           | ≥ 20%, <23%<br>< 20%, >23%                       | Normal operations. Stop work, evacuate work area.                     |  |
| Flammable vapors | ≥ 10% LEL<br>< 10% LEL                           | Stop work, evacuate work area. Continue operations, monitor for VOCs. |  |

#### When in Level D Modified/D PPE

| Analyte          | Action Level                   | Required Action <sup>b</sup>  |
|------------------|--------------------------------|---|
| VOCs             | ≥ 5 ppm above background in BZ | Stop activities, suspend work activities for 15 to 30 minutes, if readings are sustained then upgrade to Level C PPE. |
| Benzene          | 1 ppm in BZ                    | Upgrade to Level C PPE.   |
| Oxygen           | ≥ 20%, <23%<br>< 20%, >23%     | Normal operations.<br>Stop work, evacuate work area.  |
| Flammable vapors | ≥ 10% LEL<br>< 10% LEL         | Stop work, evacuate work area. Continue operations, monitor for VOCs.   |

#### Table 4-1

# Action Levels Former Decontamination Complex Parcels 93(7), 70(7), and 46(7) Fort McClellan, Calhoun County, Alabama

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#### When in Support Zone

| Analyte | Action Level                   | Required Action  |
|---------|--------------------------------|--|
| VOCs    | ≥ 1 ppm above background in BZ | Evacuate support zone and re-<br>establish perimeter of exclusion<br>zone. |

<sup>&</sup>lt;sup>a</sup> Four instantaneous peaks in any 15-minute period or a sustained reading for 5 minutes in excess of the action level will trigger a response.

No one is permitted to downgrade levels of PPE without authorization from the H&S manager.

b Contact with the H&S manager must be made prior to continuance of work. The H&S manager may then initiate perimeter/integrated air sampling along with additional engineering controls.

#### Table 4-2

#### Air Monitoring Frequency and Location Former Decontamination Complex Parcels 93(7), 70(7), and 46(7) Fort McClellan, Calhoun County, Alabama

| Work Activity                            | Instrument                               | Frequency                    | Location                            |
|--|--|------------------------------|-------------------------------------|
| Staging equipment and general site setup | OV Monitor                               | Initially for area           | Breathing zone<br>(BZ) of employees |
| Monitoring well installation             | OV Monitor<br>LEL/O <sub>2</sub> Monitor | Continuously<br>Continuously | BZ of employees<br>Support zone     |
| Subsurface soil and groundwater sampling | OV Monitor                               | Periodically                 | BZ of employees                     |

OV = Organic vapor.

 $LEL/O_2$  = Lower explosive level/oxygen.

### 5.0 Activity Hazard Analysis

The attached activity hazard analysis (Table 5-1) is provided for the following activities:

- Setup of equipment and general field activities
- Utility clearances
- Soil and groundwater sampling
- Monitoring well installation
- Surveying.

All injuries and illnesses must be immediately reported to the site manager or the SSHO, who will then notify off-site personnel and organizations as necessary.

If hospital care must be provided, the victim shall be treated at Northeast Regional Medical Center. Directions to the hospital are provided in Figure 5-1.

# Activity Hazard Analysis Former Decontamination Complex Parcels 93(7), 70(7), and 46(7) Fort McClellan, Calhoun County, Alabama

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| Activity                      | Potential Hazards               | Recommended Controls  |
|-------------------------------|---------------------------------|---|
| Staging equipment             | Slip, trip, and fall hazards    | <ul> <li>Determine best access route before transporting equipment.</li> <li>Practice good housekeeping; keep work area picked up and clean as feasible.</li> <li>Continually inspect the work area for slip, trip, and fall hazards.</li> <li>Look before you step; ensure safe and secure footing.</li> </ul> |
|                               | Heavy lifting                   | Use proper lifting techniques. Lifts greater than 60 pounds require assistance or mechanical equipment.   |
|                               | Falling objects                 | Stay alert and clear of materials suspended overhead; wear hard hat and steel-toed boots.   |
|                               | Flying debris, dirt, dust, etc. | Wear safety glasses/goggles; ensure that eye wash is in proper working condition.   |
|                               | Pinch points                    | <ul> <li>Keep hands, fingers, and feet clear of moving/suspended materials and equipment.</li> <li>Beware of contact points.</li> <li>Stay alert at all times!</li> </ul>   |
|                               | Cuts/bruises                    | Use cotton or leather work gloves for material handling.  |
|                               | Bees, spiders, and snakes       | Inspect work area carefully and avoid placing hands and feet into concealed areas.  |
|                               | Ticks                           | <ul> <li>Wear light colored clothing (can see ticks better).</li> <li>Mow vegetated and small brush areas.</li> <li>Wear insect repellant.</li> <li>Wear long sleeves and long pants.</li> <li>Visually check oneself promptly and frequently after exiting the work area.</li> </ul>                           |
|                               | Fire                            | Fire extinguishers shall be suitably placed, distinctly marked, readily accessible, and maintained in a fully charged and operable condition.   |
|                               | Hazard communication            | <ul> <li>Label all containers as to contents and dispose of properly.</li> <li>Ensure Material Safety Data Sheets (MSDS) are available for hazardous chemicals used on site.</li> </ul>   |
| Staging equipment (continued) | Noise                           | Sound levels above 85 decibels (dBA) mandates hearing protection.   |
|                               | Lighting                        | Adequate lighting will be provided to ensure a safe working environment.  |

# Activity Hazard Analysis Former Decontamination Complex Parcels 93(7), 70(7), and 46(7) Fort McClellan, Calhoun County, Alabama

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| Activity | Potential Hazards    | Recommended Controls  |  |  |
|----------|----------------------|---|--|--|
|          | Cold stress          | Workers should wear insulated clothing when temperatures drop below 40 degrees Fahrenheit (°F). Drink warm beverages on breaks. Refrain from drinking caffeinated beverages. Remove wet clothing promptly. Take breaks in warm areas. Reduce work periods as necessary. Layer work clothing.        |  |  |
|          | Poison ivy/oak/sumac | <ul> <li>Avoid plant areas if possible.</li> <li>Wear long sleeves and long pants.</li> <li>Promptly wash clothing that has contacted poisonous plants.</li> <li>Wash affected areas immediately with soap and water.</li> </ul>  |  |  |
|          | Heat rash            | <ul> <li>Keep the skin clean and dry.</li> <li>Change perspiration-soaked clothing, as necessary.</li> <li>Bathe at end of work shift or day.</li> <li>Apply powder to affected area.</li> </ul>  |  |  |
|          | Heat cramps          | <ul> <li>Drink plenty of cool fluids even when not thirsty.</li> <li>Provide cool fluid for work crews.</li> <li>Move victim to shaded, cool area.</li> </ul>   |  |  |
|          | Heat exhaustion      | <ul> <li>Conduct physiological worker monitoring as needed (i.e., heart rate, oral temperature).</li> <li>Set up work/rest periods.</li> <li>Use the "buddy system."</li> <li>Allow workers time to acclimate.</li> <li>Have ice packs available for use.</li> <li>Take frequent breaks.</li> </ul> |  |  |

# Activity Hazard Analysis Former Decontamination Complex Parcels 93(7), 70(7), and 46(7) Fort McClellan, Calhoun County, Alabama

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| Activity                      | Potential Hazards                      | Recommended Controls   |
|-------------------------------|--|--|
| Staging equipment (continued) | Heat stroke                            | <ul> <li>Evaluate possibility of night work.</li> <li>Perform physiological monitoring on workers during breaks.</li> <li>Wear body cooling devices.</li> </ul>  |
|                               | Contact with moving equipment/vehicles | <ul> <li>Work area will be barricaded/demarcated.</li> <li>Equipment will be laid out in an area free of traffic flow.</li> <li>Barricades shall be used on or around work areas when it is necessary to prevent the inadvertent intrusion of pedestrian traffic.</li> <li>Barriers shall be used to protect workers from vehicular traffic.</li> <li>Barriers shall be used to guard excavations adjacent to streets or roadways.</li> <li>Flagging shall be used for the short term (less than 24 hours) to identify hazards until proper barricades or barriers are provided.</li> <li>Heavy equipment shall have backup alarms.</li> </ul> |
|                               | Forklift operations                    | <ul> <li>Use qualified and trained forklift operators.</li> <li>The operator shall not exceed the load capacity rating for the forklift.</li> <li>The load capacity shall be clearly visible on the forklift.</li> <li>Forklift operators shall inform their supervisor of any prescribed medication that they are taking that would impair their judgement.</li> </ul>  |
|                               | Portable electric tools                | <ul> <li>Portable electric tools that are unsafe due to faulty plugs, damaged cords, or other reasons, shall be tagged (do not use) and removed from service.</li> <li>Portable electric tools and all cord and plug connected equipment shall be protected by a ground-fault circuit interrupter (GFCI) device.</li> <li>Electrical tools shall be inspected daily prior to use.</li> </ul>   |

# Activity Hazard Analysis Former Decontamination Complex Parcels 93(7), 70(7), and 46(7) Fort McClellan, Calhoun County, Alabama

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| Activity                      | Potential Hazards            | Recommended Controls   |
|-------------------------------|------------------------------|--|
| Staging equipment (continued) | Extension cords              | <ul> <li>Extension cords that have faulty plugs, damaged insulation, or are unsafe in any way shall be removed from service.</li> <li>Cords shall be protected from damage from sharp edges, projections, pinch points (doorways), and vehicular traffic.</li> <li>Cords shall be suspended with a nonconductive support (rope, plastic ties, etc,).</li> <li>Cords shall be designed for hard duty.</li> <li>Cords shall be inspected daily.</li> </ul>   |
|                               | Lightning strikes            | <ul> <li>Whenever possible, halt activities and take cover.</li> <li>If outdoors, stay low to the ground.</li> <li>Limit the body surface area that is in contact with the ground (i.e., kneeling on one knee is better than laying on the ground).</li> <li>Seek shelter in a building if possible.</li> <li>Stay away from windows.</li> <li>If available, crouch under a group of trees instead of one.</li> <li>Keep all body parts in contact with the ground as close as possible.</li> <li>Remain 6 feet away from tree trunk if seeking shelter beneath tree(s).</li> <li>If in a group, keep 6 feet of distance between people.</li> </ul>                                      |
|                               | Thunderstorms, tornados      | <ul> <li>Listen to radio or TV announcements for pending weather information.</li> <li>Cease field activities during thunderstorm or tornado warnings.</li> <li>Seek shelter. Do not try to outrun a tornado.</li> </ul>   |
| Surveying                     | Slip, trip, and fall hazards | <ul> <li>Site workers will be required to wear hard hat, safety glasses with side shields, work gloves, and steel-toe boots when working in the field.</li> <li>Provide adequate lighting in all work areas.</li> <li>Whenever possible, avoid routing cords and hoses across walking pathways.</li> <li>Flag or cover inconspicuous holes to protect against falls.</li> <li>Work areas will be kept clean and orderly.</li> <li>Garbage and trash will be disposed of daily in approved refuse containers.</li> <li>Tools and accessories will be properly maintained and stored.</li> <li>Work areas and floors will be kept free of dirt, grease, and slippery materials.</li> </ul> |

# Activity Hazard Analysis Former Decontamination Complex Parcels 93(7), 70(7), and 46(7) Fort McClellan, Calhoun County, Alabama

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| Activity              | Potential Hazards    | Recommended Controls   |
|-----------------------|----------------------|--|
| Surveying (continued) | Traffic accidents    | <ul> <li>Place physical barrier (i.e., barricades, fencing) around work areas regularly occupied by pedestrians.</li> <li>If working adjacent to roadways, have workers wear fluorescent orange vests.</li> <li>Use warning signs or lights to alert oncoming traffic.</li> <li>Assign flag person(s) if necessary to direct local traffic.</li> <li>Set up temporary parking locations outside the immediate work area.</li> <li>Motor vehicle operators shall obey all posted traffic signs, signals, and speed limits.</li> <li>Pedestrians have the right-of-way.</li> <li>Wear seat belts when vehicles are in motion.</li> </ul> |
|                       | Wildlife hazards     | Workers should be cautious when driving through the site in order to avoid encounters with passing animals.  |
|                       | Biological hazards   | Walking through overgrown grass areas, watch for snakes (rattlesnakes, moccasins, copperheads).  |
|                       | Ticks                | <ul> <li>Wear light colored clothing (can see ticks better).</li> <li>Mow vegetated and small brush areas.</li> <li>Wear insect repellant.</li> <li>Wear long sleeves and long pants.</li> <li>Visually check oneself promptly and frequently after exiting the work area.</li> </ul>  |
|                       | Poison ivy/oak/sumac | Avoid plant areas if possible.     Wear long sleeves and long pants.     Promptly wash clothing that has contacted poisonous plants.     Wash affected areas immediately with soap and water.  |

# Activity Hazard Analysis Former Decontamination Complex Parcels 93(7), 70(7), and 46(7) Fort McClellan, Calhoun County, Alabama

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| Activity             | Potential Hazards   | Recommended Controls  |
|----------------------|---|---|
| Groundwater sampling | Cross-contamination and contact with potentially contaminated materials | <ul> <li>Sampling technicians will wear proper protective clothing and equipment to safeguard against potential contamination.</li> <li>Avoid skin contact with water.</li> <li>Handle samples with care.</li> <li>Only essential personnel will be in the work area.</li> <li>Real-time air monitoring will take place before and during sampling activities.</li> <li>All personnel will follow good hygiene practices.</li> <li>Proper decontamination procedures will be followed.</li> <li>All liquids and materials used for decontamination will be contained and disposed of in accordance with federal, state, and local regulations.</li> </ul> |
|                      | Cut hazards   | Use care when handling glassware. Wear adequate hand protection.  |
|                      | Hazard communication  | MSDSs shall be obtained for chemicals brought on site.     Label all containers as to contents.   |
|                      | Strains/sprains   | <ul> <li>Use the proper tool for the job being performed.</li> <li>Get assistance if needed.</li> <li>Avoid twisting/turning while pulling on tools, moving equipment, etc.</li> </ul>  |
|                      | Spills/residual materials   | Absorbent material and containers will be kept available where leaks or spills may occur.   |
|                      | Lighting  | Adequate lighting will be provided to ensure a safe working environment.  |
|                      | Unattended worker   | Use "buddy system" - visual contact will be maintained with the sampling technician during sampling activities.   |

# Activity Hazard Analysis Former Decontamination Complex Parcels 93(7), 70(7), and 46(7) Fort McClellan, Calhoun County, Alabama

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| Activity                         | Potential Hazards   | Recommended Controls   |
|----------------------------------|---|--|
| Soil boring and surface sampling | Cross-contamination and contact with potentially contaminated materials | <ul> <li>Stop immediately at any sign of obstruction.</li> <li>Sampling technicians will wear proper protective clothing and equipment to safeguard against potential contamination.</li> <li>Only essential personnel will be in the work area.</li> <li>Real-time air monitoring will take place before and during sampling activities.</li> <li>All personnel will follow good hygiene practices.</li> <li>Proper decontamination procedures will be followed.</li> <li>All liquids and materials used for decontamination will be contained and disposed of in accordance with federal, state, and local regulations.</li> </ul> |
|                                  | Cut hazards   | Use care when handling glassware. Wear adequate hand protection.   |
|                                  | Slip, trip, and fall hazards  | <ul> <li>Site workers will be required to wear hard hat, safety glasses with side shields, work gloves, and steel-toe/shank boots when working in the field.</li> <li>Whenever possible, avoid routing cords and hoses across walking pathways.</li> <li>Flag or cover inconspicuous holes to protect against falls.</li> </ul>  |
|                                  | Bees, spiders, and snakes   | <ul> <li>Workers shall inspect the work area carefully and avoid placing hands and feet into concealed areas.</li> <li>Evaluate need for sensitive workers to have prescribed antibiotic or medicine to combat onset of symptoms.</li> </ul>   |
|                                  | Poison ivy/oak/sumac  | <ul> <li>Avoid plant areas if possible.</li> <li>Wear long sleeves and long pants.</li> <li>Promptly wash clothing that has contacted poisonous plants.</li> <li>Wash affected areas immediately with soap and water.</li> </ul>   |
|                                  | Cold stress   | <ul> <li>Workers should wear insulated clothing when temperatures drop below 40°F.</li> <li>Drink warm beverages on breaks. Refrain from drinking caffeinated beverages.</li> <li>Remove wet clothing promptly.</li> <li>Take breaks in warm areas.</li> <li>Reduce work periods as necessary.</li> <li>Layer work clothing.</li> </ul>  |

# Activity Hazard Analysis Former Decontamination Complex Parcels 93(7), 70(7), and 46(7) Fort McClellan, Calhoun County, Alabama

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| Activity                                     | Potential Hazards     | Recommended Controls   |
|--|-----------------------|--|
| Soil boring and surface sampling (continued) | Access/egress hazards | <ul> <li>Use qualified and trained bushhog operator.</li> <li>Keep employees out of the bushhog work area.</li> <li>Utilize good housekeeping practices.</li> <li>Keep aisleways, pathways, and work areas free of obstruction.</li> <li>Clean ice or snow off of walkways or work stations.</li> <li>Use appropriate footwear for the task assigned.</li> </ul> |
|  | Heat rash             | <ul> <li>Keep the skin clean and dry.</li> <li>Change perspiration-soaked clothing, as necessary.</li> <li>Bathe at end of work shift or day.</li> <li>Apply powder to affected area.</li> </ul>   |
|  | Heat cramps           | <ul> <li>Drink plenty of cool fluids even when not thirsty.</li> <li>Provide cool fluid for work crews.</li> <li>Move victim to shaded, cool area.</li> </ul>  |
|  | Heat exhaustion       | <ul> <li>Conduct physiological worker monitoring as needed (i.e., heart rate, oral temperature).</li> <li>Set up work/rest periods.</li> <li>Use the buddy system.</li> <li>Allow workers time to acclimate.</li> <li>Have ice packs available for use.</li> <li>Take frequent breaks.</li> </ul>  |
|  | Heat stroke           | <ul> <li>Evaluate possibility of night work.</li> <li>Perform physiological monitoring on workers during breaks.</li> <li>Wear body cooling devices.</li> </ul>  |

# Activity Hazard Analysis Former Decontamination Complex Parcels 93(7), 70(7), and 46(7) Fort McClellan, Calhoun County, Alabama

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| Activity                                     | Potential Hazards                 | Recommended Controls  |
|--|-----------------------------------|---|
| Soil boring and surface sampling (continued) | Lightning strikes                 | <ul> <li>Whenever possible, halt activities and take cover.</li> <li>If outdoors, stay low to the ground.</li> <li>Limit the body surface area that is in contact with the ground (i.e., kneeling on one knee is better than laying on the ground).</li> <li>Seek shelter in a building if possible.</li> <li>Stay away from windows.</li> <li>If available, crouch under a group of trees instead of one single tree.</li> <li>Keep all body parts in contact with the ground as close as possible.</li> <li>If in a group, keep 6 feet of distance between people.</li> </ul> |
| Moving and shipping collected samples        |                                   | Use proper lifting techniques. Lifts greater than 60 pounds require assistance or mechanical equipment; size-up the lift.   |
|  | Pinch points                      | <ul> <li>Keep hands, fingers, and feet clear of moving/suspended materials and equipment.</li> <li>Beware of contact points.</li> <li>Stay alert at all times!</li> </ul>   |
|  | Cut hazards                       | Wear adequate hand protection. Use care when handling glassware.  |
|  | Hazard communication              | Label all containers as to contents and associated hazards.   |
|  | Heavy lifting                     | Use proper lifting techniques. Lifts greater than 60 pounds require assistance or mechanical equipment; size-up the lift.   |
| Material storage                             | Flammable and combustible liquids | Store in NO SMOKING AREA.     Fire extinguisher readily available.     Transfer only when properly grounded and bonded.   |

# Activity Hazard Analysis Former Decontamination Complex Parcels 93(7), 70(7), and 46(7) Fort McClellan, Calhoun County, Alabama

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| Activity   | Potential Hazards   | Recommended Controls   |
|--|---|--|
| Disposal of investigation-derived waste (IDW) (Forklift Operation) | Personnel injury, property damage, and/or equipment damage              | <ul> <li>Use qualified and trained forklift operators.</li> <li>The operator shall not exceed the load capacity rating for the forklift.</li> <li>The load capacity shall be clearly visible on the forklift.</li> <li>Forklift operators shall inform their supervisor of any prescribed medication that they are taking that would impair their judgement.</li> </ul>  |
|  | Cross-contamination and contact with potentially contaminated materials | <ul> <li>Stop immediately at any sign of obstruction.</li> <li>Sampling technicians will wear proper protective clothing and equipment to safeguard against potential contamination.</li> <li>Only essential personnel will be in the work area.</li> <li>Real-time air monitoring will take place before and during sampling activities.</li> <li>All personnel will follow good hygiene practices.</li> <li>Proper decontamination procedures will be followed.</li> <li>All liquids and materials used for decontamination will be contained and disposed of in accordance with federal, state, and local regulations.</li> </ul> |
|  | Cut hazards   | Use care when handling glassware. Wear adequate hand protection.   |
| High-pressure water jetting operations                             | Heavy lifting   | <ul> <li>Use proper lifting techniques.</li> <li>Lifts greater than 60 pounds require assistance or mechanical equipment; size-up the lift.</li> </ul>   |
|  | Slip, trip, and fall hazards  | <ul> <li>Good housekeeping shall be implemented.</li> <li>The work area shall be kept clean as feasible.</li> <li>Inspect the work area for slip, trip, and fall hazards.</li> </ul>   |
| High-pressure water jetting operations (continued)                 | Fueling   | <ul> <li>Only approved safety cans shall be used to store fuel.</li> <li>Do not refuel equipment while it is operating.</li> <li>Fire extinguishers shall be suitably placed, distinctly marked, readily accessible, and maintained in a fully charged and operable condition.</li> </ul>  |
|  | Faulty or damaged equipment   | <ul> <li>Equipment shall be inspected before being placed into service and at the beginning of each shift.</li> <li>Preventive maintenance procedures recommended by the manufacturer shall be followed.</li> <li>A lockout/tagout procedure shall be used for equipment found to be faulty or undergoing maintenance.</li> </ul>  |

# Activity Hazard Analysis Former Decontamination Complex Parcels 93(7), 70(7), and 46(7) Fort McClellan, Calhoun County, Alabama

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| Activity   | Potential Hazards                               | Recommended Controls   |
|--|---|--|
|  | High-pressure water                             | <ul> <li>Jetting gun operator must wear appropriate PPE including hard hat, impact-resistant safety glasses with side shields, water-resistant clothing, metatarsal guards for feet and legs, and hearing protection (if appropriate).</li> <li>One standby person shall be available within the vicinity of the pump during jetting operation.</li> <li>The work area shall be isolated and adequate barriers will be used to warn other site personnel.</li> </ul> |
|  | Unqualified operators                           | Only qualified and trained personnel are permitted to operate machinery and mechanized equipment associated with water jet cutting and cleaning.   |
|  | Out of control equipment                        | <ul> <li>No machinery or equipment is permitted to run unattended.</li> <li>Machinery or equipment will not be operated in a manner that will endanger persons or property nor will the safe operating speeds or loads be exceeded.</li> </ul>   |
|  | Noise   | Sound levels above 85 dBA mandates hearing protection by nearby site personnel.  |
| High-pressure water jetting operations (continued) | Activation during repairs                       | All machinery or equipment will be shut down and positive means taken to prevent its operation while repairs or manual lubrications are being done.  |
|  | Pinch points                                    | <ul> <li>Keep feet and hands clear of moving/suspended materials and equipment.</li> <li>Stay alert and clear of materials suspended .</li> </ul>  |
|  | Falling objects                                 | <ul> <li>Hard hats are required by site personnel.</li> <li>Stay alert and clear of material suspended overhead.</li> </ul>  |
|  | Flying debris                                   | Impact-resistant safety glasses with side shields are required.  |
|  | Contact with potentially contaminated materials | All site personnel will wear the appropriate PPE.  |

